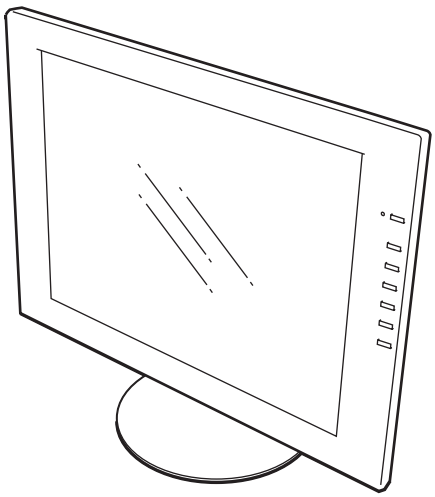
SDM-S51R

SERVICE MANUAL

US Model
Canadian Model
AEP Model



SPECIFICATIONS

LCD panel	Panel type: a-Si TFT Active Matrix
	Picture size: 15.0 inch
Input signal format	RGB operating frequency*
	Horizontal: 28 - 61 kHz
	Vertical: 48 - 75 Hz
Resolution	Horizontal: Max.1024 dots
	Vertical: Max.768 lines
Input signal levels	RGB video signal
	0.7 Vp-p, 75Ω, positive
	SYNC signal
	TTL level, 2.2 kΩ
	positive or negative
	(Separate horizontal and vertical)
Power requirements	100 - 240 V, 50 - 60 Hz,
	Max. 0.6A
Power consumption	Max. 25 W
Operating temperature	5 - 35 aC

Dimensions (width/height/depth)	
	Display (upright):
	Approx. 387 x 330 x 175 mm
	(15 1/4 x 13 x 7 inches)
	(with stand)
	Approx. 387 x 281 x 48 mm
	(15 1/4 x 11 1/8 x 1 15/16 inches)
	(with stand)
Mass	Approx. 3.5 kg (7 lb 11 oz) (with stand)
	Approx. 2.8 kg (6 lb 3 oz) (without stand)
Plug & Play	DDC2B
Accessories	See page 7.

* Recommended horizontal and vertical timing condition
Horizontal sync width duty should be more than 4.8% of total horizonrtal time or 0.8µs, whichever is larger.
Horizontal blanking width should be more than 2.5µsec.
Vertical blanking width should be more than 450µsec.

Design and specifications are subject to change without notice.

TFT LCD Color Computer DISPLAY

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that youhave replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC Leakage. Check leakage as described right.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes).

Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOMs that are suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

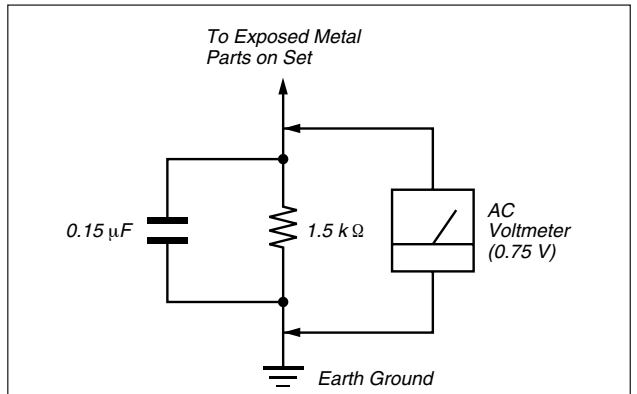


Fig. A. Using an AC voltmeter to check AC leakage.

WARNING!!

NEVER TURN ON THE POWER IN A CONDITION IN WHICH THE DEGAUSS COIL HAS BEEN REMOVED.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUST- MENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

AVERTISSEMENT!!

NE JAMAIS METTRE SOUS TENSION QUAND LA BOBINE DEDEMAGNETISATION EST ENLEVÉE.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!! LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SONT CRITIQUES POUR LA SÉCURITÉ. NE LES REMPLACER QUE PAR UNE PIÈCE PORTANT LE NUMÉRO SPECIFIÉ. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

POWER SAVING FUNCTION

This monitor meets the power-saving guidelines set by VESA, ENERGY STAR, and NUTEK. If the monitor is connected to a computer or video graphics board that is DPMS (Display Power Management Signaling) compliant, the monitor will automatically reduce power consumption as shown below.

Power mode	Power consumption	⏻ (power) indicator
normal operation	25 W (max.)	green
active off* (deep sleep)**	3 W (max.)	orange***
power off	2 W (max.)	off

* When your computer enters the active off mode, the input signal is cut and NO INPUT SIGNAL appears on the screen. After 20 seconds, the monitor enters the power saving mode.

** "deep sleep" is the power saving mode defined by the Environmental Protection Agency.

*** If only the horizontal or vertical sync signal is input to the monitor, the power indicator may alternately flash green and orange.

AUTOMATIC PICTURE QUALITY ADJUSTMENT FUNCTION

When the monitor receives an input signal, it automatically matches the signal to one of the factory preset modes stored in themonitor's memory to provide a high quality picture at the centerof the screen.
For input signals that do not match one of the factory presetmodes, the automatic picture quality adjustment function of thismonitor automatically adjusts the picture position, phase, andpitch, and ensures that a clear picture appears on the screen forany timing within the monitor's frequency range (horizontal: 28 -61 kHz, vertical: 48 - 75 Hz).

Consequently, the firdt time the monitor receives input signals that do not match one of the factory preset modes, the monitor may take a longer time than normal for displaying the picture on the screen. This adjustment data is automatically stored in memory so that next time, the monitor will function in the same way as when the monitor receives the signals that match one of the factory preset modes.
In all modes as above, if the picture is adjusted, the adjustment data is stored as a user mode and automatically recalled whenever the same input signal is received.

Note
While the automatic picture quality adjustment function is activated, only the (power) switch will operate.

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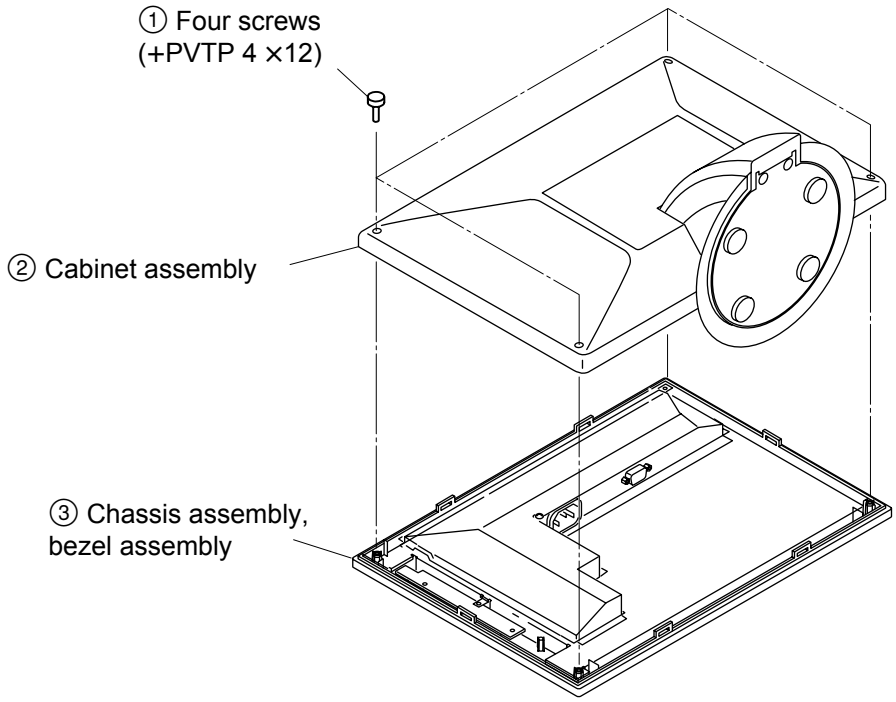
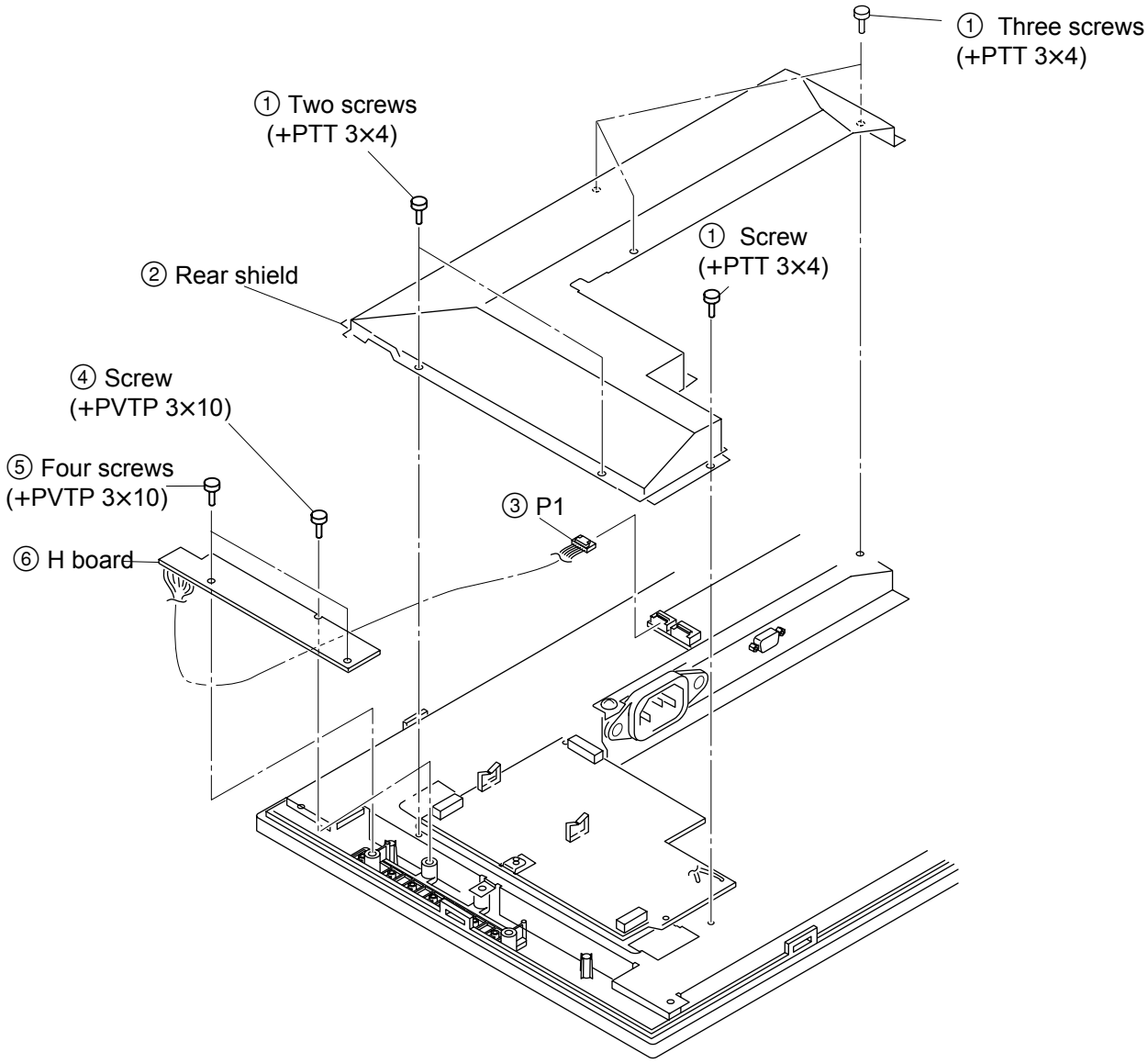
SECTION 1
DISASSEMBLY

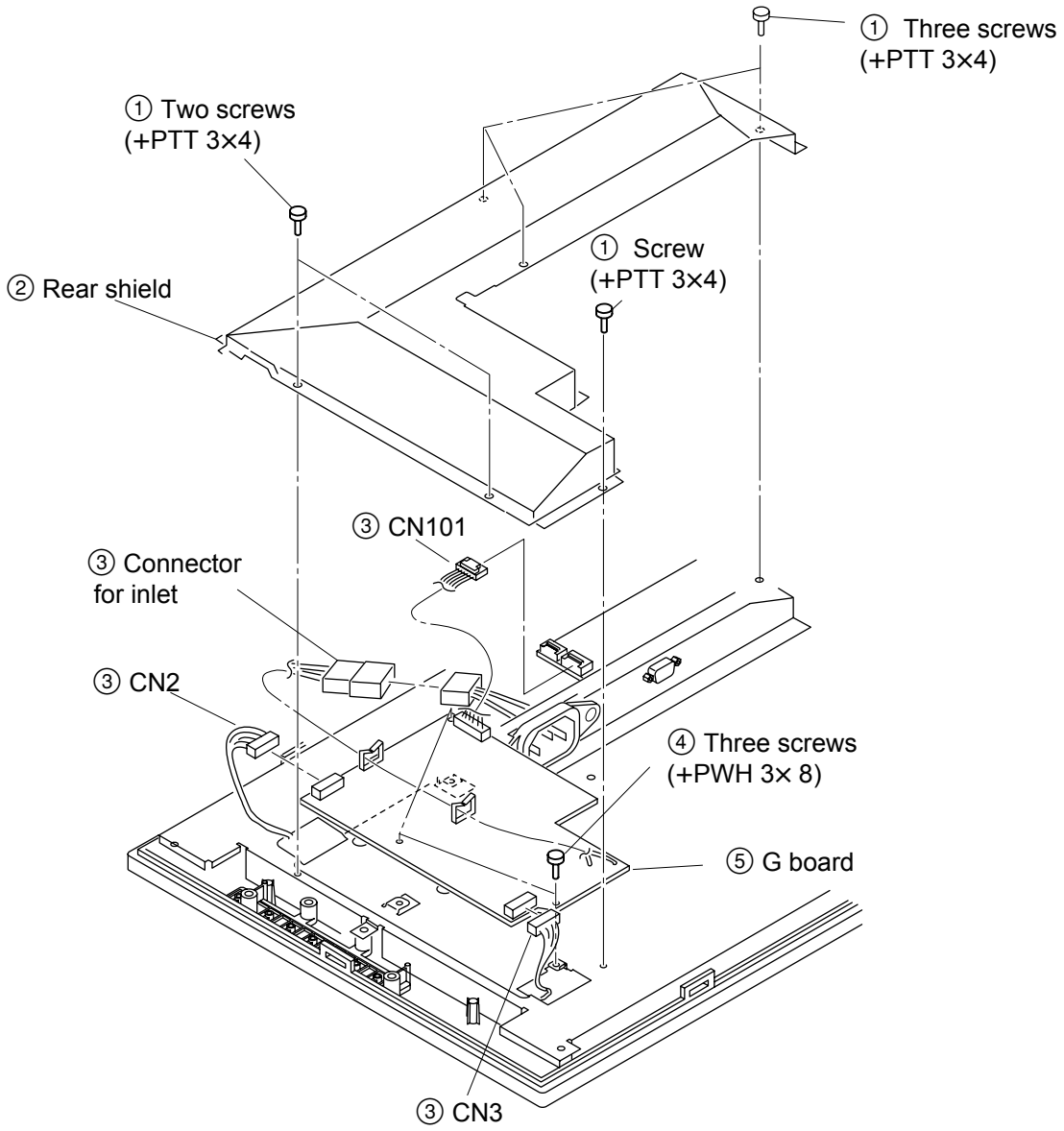
1-1. CABINET ASSEMBLY



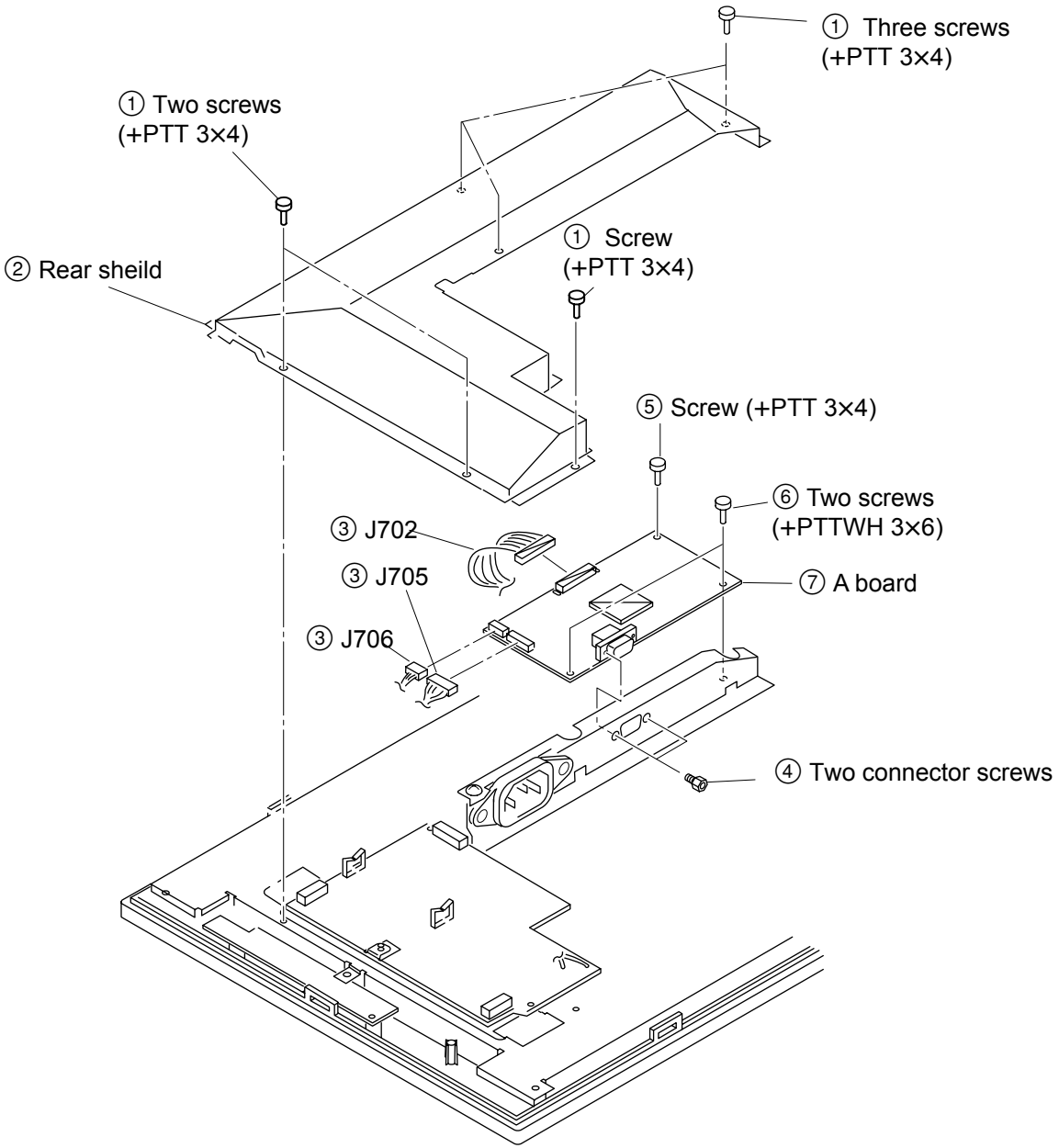
1-2. H MOUNT


① Three screws
(+PTT 3×4)
① Two screws
(+PTT 3×4)
① Screw
(+PTT 3×4)
② Rear shield
④ Screw
(+PVTP 3×10)
⑤ Four screws
(+PVTP 3×10)
③ P1
⑥ H board

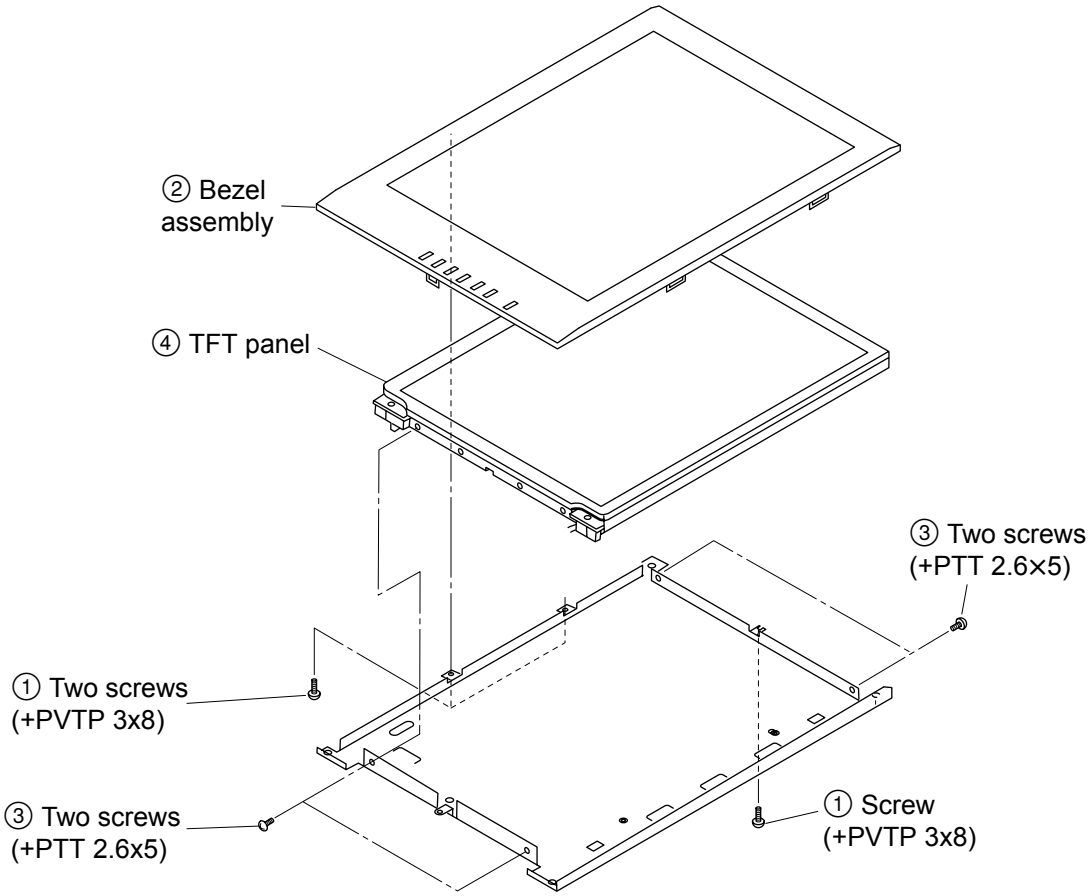
1-3. G MOUNT


① Three screws
(+PTT 3×4)
① Two screws
(+PTT 3×4)
① Screw
(+PTT 3×4)
② Rear shield
③ CN101
③ Connector
for inlet
③ CN2
④ Three screws
(+PWH 3× 8)
⑤ G board
③ CN3

1-4. A BOARD


① Three screws
(+PTT 3×4)
① Two screws
(+PTT 3×4)
① Screw
(+PTT 3×4)
② Rear sheild
⑤ Screw (+PTT 3×4)
⑥ Two screws
(+PTTWH 3×6)
③ J702
③ J705
③ J706
⑦ A board
④ Two connector screws

1-5. TFT PANEL


② Bezel assembly
④ TFT panel
③ Two screws (+PTT 2.6×5)
① Two screws (+PVTP 3x8)
③ Two screws (+PTT 2.6x5)
① Screw (+PVTP 3x8)

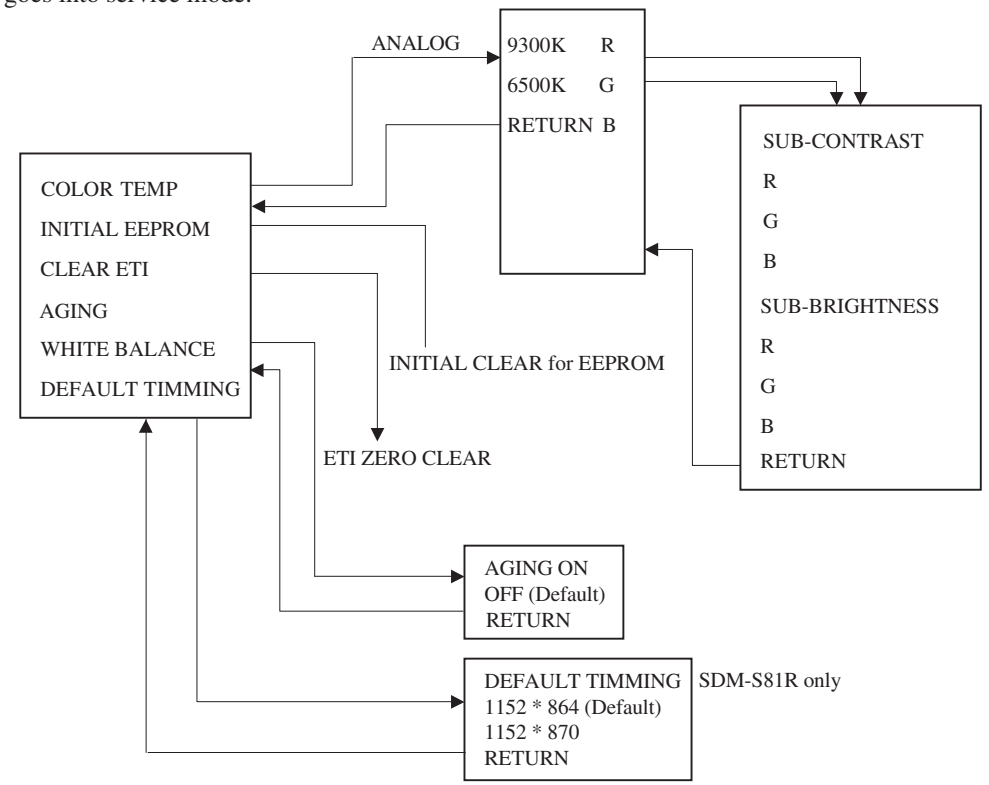
SECTION 2
ADJUSTMENTS

2-1. FUNCTIONAL ADJUSTMENT

•How to go to service mode.

1. On the stand-by mode, press " ⏻ " key while pressing " ↓ " key. The monitor goes into service mode.
2. Press "MENU" key.
3. Once press " "key and select the mark "S" on the second page.
4. Press "OK" key to go to "MAINTAIN" (service menu).
5. Select one of features.
6. Press "MENU" key to exit service mode.
7. Turn power off then on again, the monitor goes to normal mode.

If you would like to set the monitor to service mode again,
repeat the above procedure.



Note:
If the TFT panel or A board is replaced, be sure to perform the W/B adjustment again.
Before the W/B adjustment, the no signal aging is needed for 30 minutes or more.

Other Information:

All Mode Recall: On the stand-by mode, press " ⏻ " key while pressing "OK" key. Clears user's memory, resets BACKLIGHT,CONTRAST, BRIGHTNESS, PHASE, PITCH, CENTER, COLOR, USER ADJUSTMENT COLOR GAMMA, MENU POSITION, POWERSAVE, LANGUAGE, MENU LOCK to default values. Also clears Aging Mode. After executing this command, be sure to put AC power cord out and in to set the default values. (Refleshing is required.)
Aging mode: On the stand-by mode, press " ⏻ " key while pressing " ↑ "key. The monitor goes into the no signal aging mode.
To release the aging mode setting, turn off the aging bit in service mode or execute All Mode Recall.
Clear ETI: On the stand-by mode, press " ⏻ " key while pressing " ☼ "key. The monitor information data during EDID is copied to the microcomputer and clears ETI to zero.

2-2. TIMING SPECIFICATION

	Adj Signal		
MODE FOR CUSTOMER	VESA 60Hz		
RESOLUTION	1024	X	768
CLOCK	65.000		MHZ
-- HORIZONTAL --			
H-FREQ	48.363		kHz
	usec		dots
H. TOTAL	20.677		1344
H. BLK	4.923	0	320
H. FP	0.369		24
H. SYNC	2.092		136
H. BP	2.462		160
H. ACTIV	15.754		1024
-- VERTICAL --			
V. FREQ(HZ)	60.004		Hz
	msec		lines
V. TOTAL	16.666		806
V. BLK	0.786		38
V. FP	0.062		3
V. SYNC	0.124		6
V. BP	0.600		29
V. ACTIV	15.880		768
-- SYNC --			
INT(G)	NO		
EXT(H/V)/POLARITY	YES		N/N
EXT(CS) /POLARITY	NO		
Serration	NO		
SYNC LEVEL	TTL		V
-- VIDEO --			
VIDEO LEVEL	0.700		Vp-p
SET UP	0		V
-- OTHERS --			
INT/NON INT	NON INT		
SIZE(15")	304 X 228		mm
SIZE(17")	-		mm
SIZE(18")	-		mm
#OF GRIDS	16	X	12
DOTS & LINES/GRID	64	X	64
EDID DATA			
COMMENTS - SONY SG SETTING -OTHERS	35IRE		

2-3. WHITE BALANCE ADJUSTMENT

<Equipments required>
Signal generator: VG819 or equivalent (Be sure to confirm the output level of the analog RGB out 75 ohm terminated.)
Color analyzer: MINOLTA CS1000 or equivalent

<Preparation>
Confirm the center of screen by feeding the cross pattern, and set the color analyzer at the 50cm distance from the center of the screen.
Set the monitor to Aging mode for 30 minutes or more.

<Setting>
On the service mode, set Bright=50, Contrast=70 and Backlight=100.
Be sure to set the menu display position off from the mesuring point.
Feed the attached specification timing signal to the monitor.

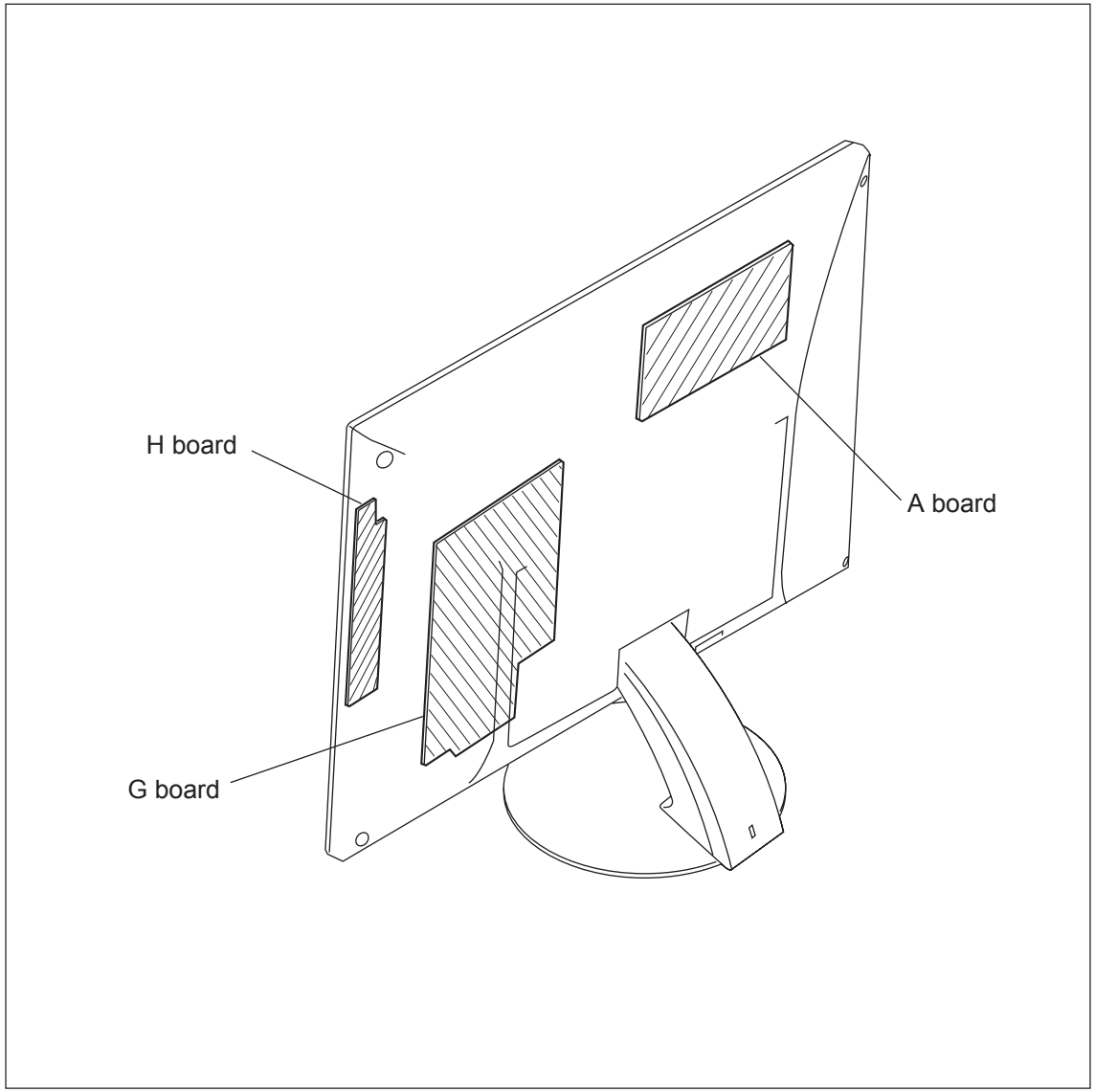
<Adjusting>
1. While feeding the all white signal, select and execute "INITIAL EEPROM" command in service menu.
2. Switch the signal to the 35IRE all gray, select "COLORTEMP 9300K". (The signal output level should be 0.245V at 75ohm terminated.)
3. Fix the B data of SUB CONTRAST, adjust the R and G data to the specified value below. (Be sure to adjust by reducing the R and G data.)

9300K x=0.283±0.003 y=0.298±0.003
Note: In the fine adjustment, in case of the B adjustment is needed, be sure to adjust within several steps.
4. Continuously feeding the 35IRE all gray signal, select "COLORTEMP 6500K".
5. Fix the B data of SUB CONTRAST, adjust the R and G data to the specified value below. (Be sure to adjust by reducing the R and G data.)
6500K x=0.313+-0.003 y=0.329+-0.003

6. Turn power off to release the service mode.

SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION



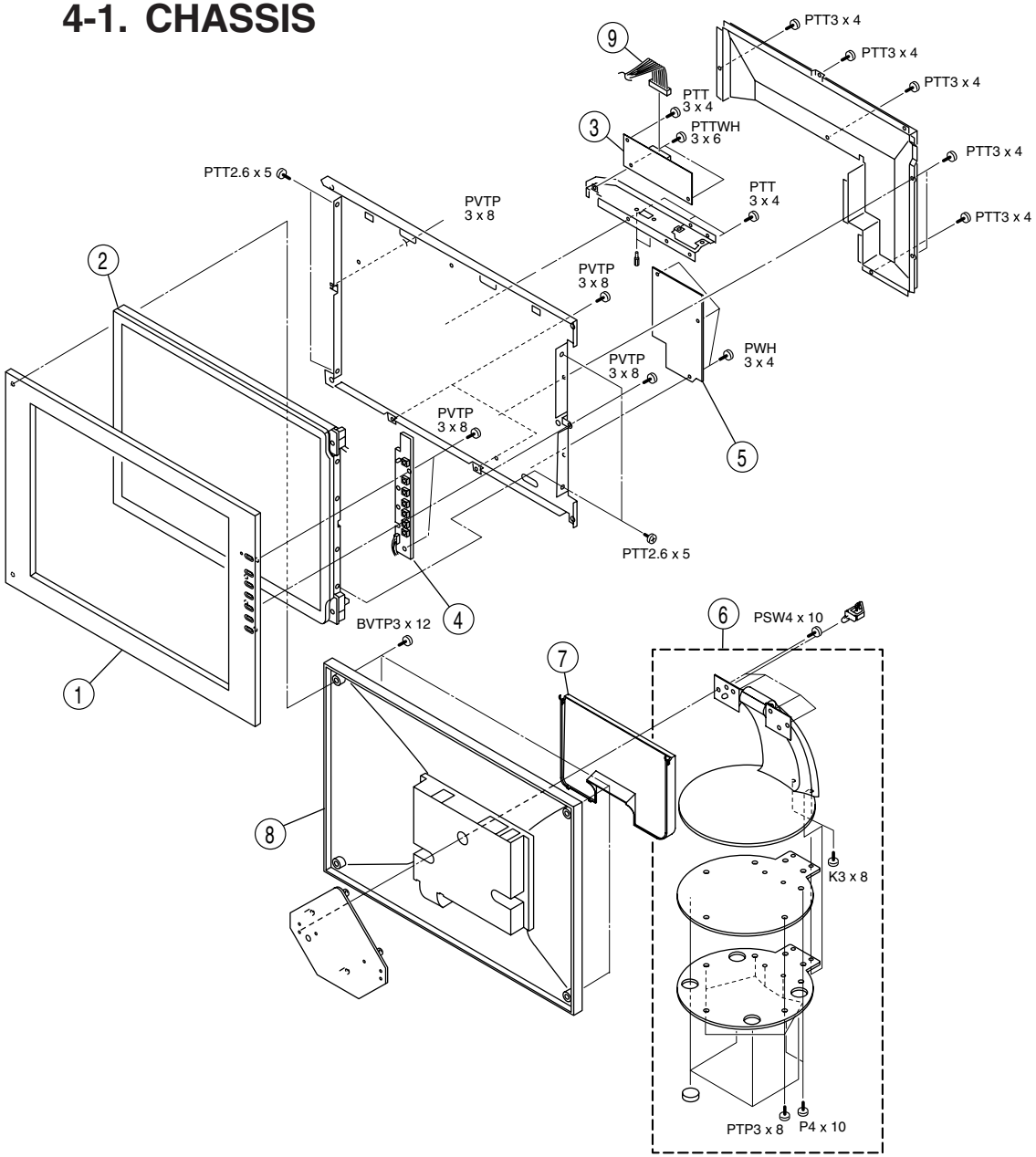
SECTION 4
EXPLODED VIEWS

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified ⚠marked are critical for safety.
Replace only with the part number specified.

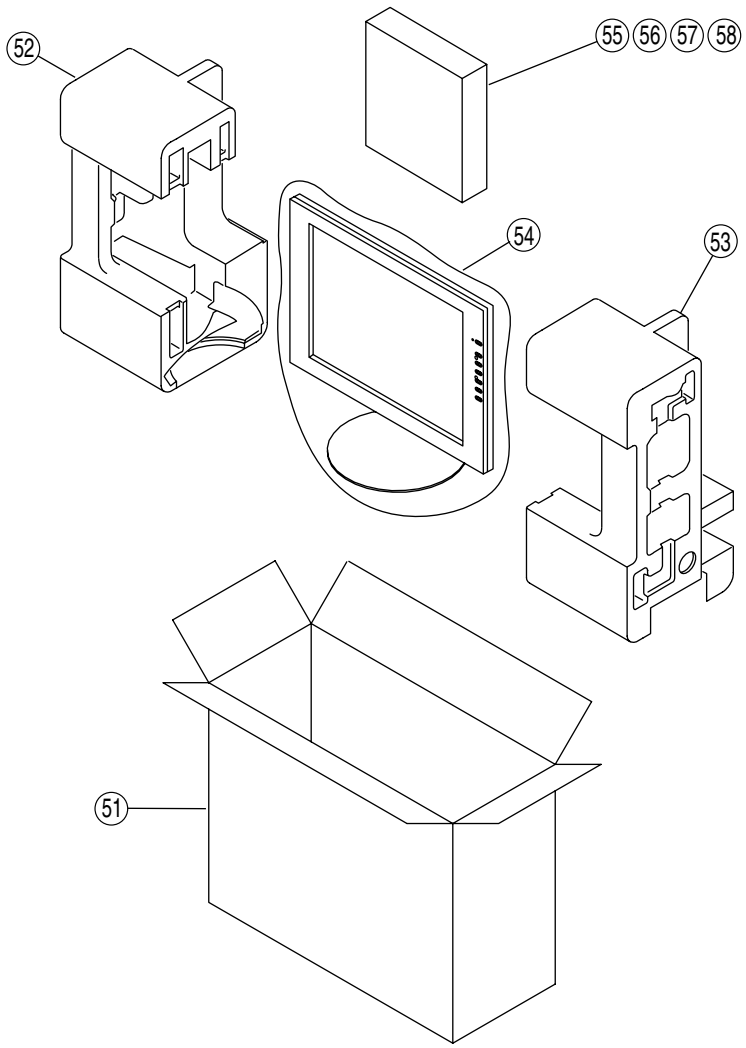
Les composants identifiés par la marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

4-1. CHASSIS



REF.NO.	PART NO.	DESCRIPTION	REMARK
1		X-4041-325-1 BEZEL ASSY (WHITE)	
1		X-4041-328-1 BEZEL ASSY (BLACK)	
2		1-805-211-11 LCD PANEL (LM150X06-A3M1)	
3		A-1404-778-AA BOARD, COMPLETE	
4		A-1404-777-AH BOARD, COMPLETE	
5		A-1404-779-AG BOARD, COMPLETE	
6		X-4041-327-1 STAND ASSY (WHITE)	
6		X-4041-330-1 STAND ASSY (BLACK)	
7		4-093-631-01 COVER, REAR (WHITE)	
7		4-093-631-11 COVER, REAR (BLACK)	
8		4-093-630-01 CABINET (WHITE)	
8		4-093-630-11 CABINET (BLACK)	
9		1-900-273-28 CONNECTOR ASSY	

4-2. PACKING MATERIALS



REF.NO.		PART NO.	DESCRIPTION	REMARK
51	*	4-093-175-01	INDIVIDUAL CARTON (WHITE)	
51	*	4-093-176-01	INDIVIDUAL CARTON (BLACK)	
52	*	4-093-647-01	CUSHION (L)	
53	*	4-093-646-01	CUSHION (R)	
54	*	4-093-645-01	BAG (700X900), POLY	
55	⚠	1-827-118-11	POWER-SUPPLY CORD SET (U/C)	
55	⚠	1-827-120-11	POWER-SUPPLY CORD SET (AEP)	
56		1-827-110-11	CABLE, D-SUB	
57		4-093-513-01	CD-ROM	
58		4-093-064-12	MANUAL, INSTRUCTIONS	

NOTE:

The components identified ⚠marked are critical for safety.
Replace only with the part number specified.

Les composants identifiés par la marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

English
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